CALIFORNIA ENERGY COMMISSION
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Sacramento, California 95814

Main website: www.energy.ca.gov

PROGRAM OPPORTUNITY NOTICE

ANNOUNCING THE RELEASE OF A
COMPETITIVE GRANT SOLICITATION AND APPLICATION PACKAGE
FOR
RENEWABLE-BASED ENERGY SECURE COMMUNITIES (RESCOs) RESEARCH, DEVELOPMENT & DEMONSTRATION
PON-08-004

PUBLIC INTEREST ENERGY RESEARCH – RENEWABLES PROGRAM

Release Date: December 8, 2008

Proposal Due Date: January 30, 2009 at 4:00 p.m. Pacific Daylight Time

Purpose:
This is a competitive grant solicitation sponsored by the California Energy Commission's Public Interest Energy Research (PIER) Renewables Program to:

1) identify and co-fund three or more integrated renewable energy (RE) projects that enable effective use of multiple geographically convenient RE sources and address technical, economic, and environmental barriers to implementation of renewable energy secure communities (RESCO) in California, and
2) identify and co-fund one project for each RESCO collateral category projects that complement the RESCO integration projects.

The integrated RE projects are targeted to be organized by leading California communities in collaboration with other private and public sector partners. Resulting integrated technical solutions will be replicable by sustainable communities in California, especially those aiming for zero net energy purchases, zero carbon, zero waste, sustainable transportation fuels, sustainable water, and sustainable local ecology.

RESCO RD&D Initiative:

RD&D Context:
RESCO RD&D funding is being administered by the PIER Renewables Program in collaboration with other PIER programs, i.e. Energy Systems Integration, Environmentally-Preferred Advanced Generation, Industrial/Agricultural/Water End-Use Energy Efficiency, Buildings End-Use Energy Efficiency, and Transportation. The emphasis is on economically and environmentally preferred technical integration solutions that enable multiple individual RE conversion technologies to serve a community's energy needs more cost effectively than would be possible using a single technology. To illustrate the range of integration issues that may be encountered on the way to achieving the RESCO vision, Figure 1 juxtaposes the building blocks of a RESCO, wherein a mix of RE conversion technologies can be integrated into sustainable community-based projects. The RD&D of RE integration solutions will

capitalize on recent and on-going advancements in energy efficiency and demand response, smart grid integration, combined cooling heating and power (CCHP), energy storage, and co-production of transportation fuels.

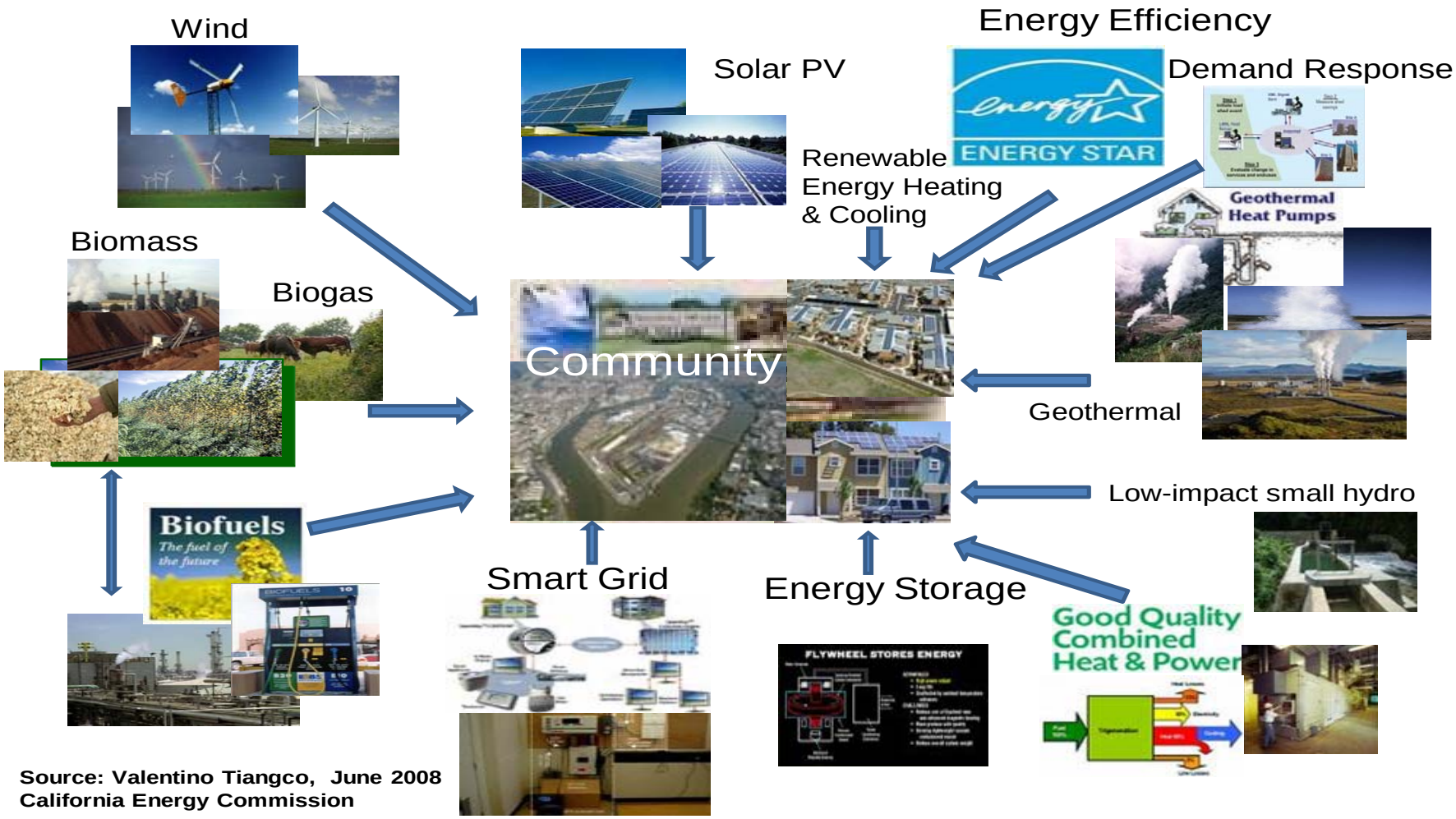
The RESCO RD&D strategy is to encourage orderly and capital efficient development of community based renewable resources, using RD&D funds to anticipate and address the technical issues that arise when the problem of achieving net-zero energy imports is addressed at the community level. If the problem is addressed through a portfolio of unrelated and uncoordinated projects, an environmentally and economically sub-optimal solution will be the likely result. On the other hand, if it is addressed holistically important synergies can be exploited, and momentum and cost savings can be sustained and grown. In other words, RE developers, planners, utilities, and community leaders need a framework in which to collaborate and optimize a community's future energy infrastructure. RD&D can address the risks involved in first-of-a-kind linkages between the pieces of the net-zero puzzle depicted in Figure 1.

Market Context:
A diverse set of RE technologies are now being deployed in California in an equally diverse array of ways, ranging from utility scale power plants to energy capabilities for communities and buildings that result in no net energy draws from the local electricity and natural gas grids. Many RE technologies can be economically demonstrated and deployed in sizes that fit the demand profile of California inland and coastal communities that range from residential subdivisions to medium size cities and include university campuses, business parks, public agency operations, and other localized groupings of energy users. The technical challenges involved no longer relate primarily to the cost and performance of the individual RE technologies but increasingly to the technologies, tools and strategies that enable their integrated and symbiotic use. Communities wishing to stabilize their future energy costs, create local jobs, reduce environmental impacts, and tap locally available renewable energy resources face the need to develop energy infrastructure that works in harmony with larger fuel and electricity systems while reducing fossil fuel use and climate change impacts. They need to learn by doing. Initial steps may involve sequential planning, piloting, and implementing of solutions and capabilities that: 1) fit the local resource base, and 2) offer promise for future integration and expansion toward the goal of eventually achieving full reliance on RE.

The issues California faces in its efforts to meet the energy needs in a carbon-constrained world are discussed in the 2007 Integrated Energy Policy Report (IEPR). Reversing the growth of greenhouse gas (GHG) emissions as mandated by AB 32 and achieving California's Renewable Portfolio Standard, and other goals (Bioenergy Action Plan, California Solar Initiative, Low Carbon Fuel Standard, etc.) will benefit from RE integration and deployment facilitated by local jurisdictions, public agencies and other local institutions. There are already communities in California committed to become RESCOs. However, there are as yet no proven models and tools for integrating RE into a community's energy infrastructure in a technically and economically optimum way. New technologies and sustainable technology solutions will be required to enable integration of emerging, mature, and economically available RE supply systems.

A list of benefits of RESCOs was created based on inputs received at three RESCO introductory public workshops and three internal Energy Commission focus group meetings. The numerous and diverse benefits of a community's choices regarding energy supply and use include environmental, economic, and social benefits. For details about these benefits, see the Application Manual.

Figure 1. RESCO Building Blocks



Desirable RD&D Goals of RESCO RD&D Initiative:

The desirable RD&D goals for RESCO are:

- Support California's **2007 IEPR** and climate leadership in reducing greenhouse gases (GHG) and other policy goals (e.g., RPS, CSI, and Bioenergy Action plan, etc)
- Support the general goal of PIER Electricity and PIER Natural Gas Programs to develop and help bring to market, energy technologies that provide increased environmental benefits, greater system reliability, and lower system costs
- Provide RD&D support to communities committed to a clean energy future and accrue public benefits
- Support local government efforts to address climate and energy in their master plan
- Bring full menu of mature, viable, distributed RE technologies, products and services and related California RE resources into play by accelerating their commercialization and use in and by California communities in conjunction with complementary energy technologies and integrated solutions that include:
  - -energy efficiency and demand response,
  - -smart grid technology,
  - -energy storage,
  - -combined cooling, heating and power, and
  - -co-production of value-added products such as bio-fuels

  thus, making California's electricity and transportation fuels more diverse, safe, cleaner, and affordable.
- Reduce congestion at transmission gateways
- Stabilize energy costs for families and local businesses
- Create local jobs and keep energy purchase dollars and related tax revenues inside the community
- Protect the environment and tap economically exploitable local energy resources
- Improve quality of life in communities
- Consolidated and streamlined permits

Eligible Projects

Eligible projects must help achieve accelerated adoption, implementation, and sustainable growth of RE systems in California. In order for RESCO technical integration and collateral category project results to be implemented as rapidly as possible, it is essential to address integration issues at the interfaces between the numerous complementary options as shown in Figure 1. In this early stage of RESCO RD&D, it is also necessary to address some collateral RD&D needs. Deployment of RE in California will rely increasingly on market driven industrial RD&D for improvements in performance and cost reductions and increased attention to the cost effective deployment of already mature RE technologies and products in community-based applications.

Eligible projects are divided into two categories: RESCO Technical Integration Projects and RESCO Collateral Projects.

A. RESCO Technical Integration Projects

Projects in any of the three stages as shown below will be eligible for funding:

1. Exploratory Stage: Projects offered by community organizations and their teams must consider the full range of RE solutions consistent with locally available RE resources. As noted in the above introduction, the premise of this solicitation is that typically it will be necessary for a community to exploit multiple RE resource/conversion technology combinations to achieve cost-optimum primary reliance on RE. Further, it will likely also be necessary to plan for some or all of the non-supply integration solutions shown in Figure 1. Finally, organizations and teams must show evidence of having the commitment and capacity to follow through on exploratory stage results, i.e. exploratory stage results should include selection and definition of appropriate pilot and implementation projects**.**

2. Pilot Stage: Projects must be offered by community organizations committed to specific RESCO development plans and must involve hardware development and demonstration employing three or more mature and viable RE resource/conversion technologies (as shown in Figure 1) and addressing two or more of the eligible technical integration solutions categories described in Attachment A of the Application Manual.

3. Implementation Stage: Projects must be offered by community organizations already implementing specific and detailed RESCO development plans and must involve hardware development and demonstration employing three or more mature and viable RE resource/conversion technology options (as shown in Figure 1) and three or more integration solution categories described in Attachment A of the Application Manual. In addition, implementation projects should address energy system design, scale-up and operational and grid integration issues. A discussion of eligible RESCO technical integration solutions is provided in Attachment A of the Application Manual.

B. RESCO Collateral Category Projects

The Energy Commission has allocated funding for RD&D projects addressing the following collateral categories, because work in these categories relates directly to the RESCO vision by developing solutions and directions useful to RESCOs. The following projects will be funded from PIER Electricity and Natural Gas funds as indicated below and will be scored separately from the RESCO Technical Integration projects:

1. **Integration and implementation of smart grid concepts in the RESCO context**. See Attachment B1 of the Application Manual for more guidance regarding the desirable scope and funding for this collateral project.

2. **Dairy bio-gas or bio-power technology characterization, assessment and validation**. See Attachment B2 of the Application Manual for guidance regarding the desirable scope for this collateral project.

3. **Demonstration of low cost, low emission technologies for conversion of biogas**. See Attachment B3 of the Application Manual for this collateral project.

Feasibility studies and bench-scale projects will not be funded under this solicitation. Entities or individuals who wish to pursue funding for feasibility studies and bench scale projects should consider applying to the Commission's Energy Innovation Small Grant Program. Information on this program is available through the Energy Commission's website http://www.energy.ca.gov/contracts/index.html.

Funding Information

A total of up to **$9,100,000** is available for RESCO project funding through this solicitation for FY 2008. Funds are available from PIER Electricity **($5,850,000)** and Natural Gas Programs **($3,250,000)** accounts.

The maximum levels of funding for RESCO Technical Integration projects are:

1. Exploratory: **$200,000**
2. Pilot: **$1,000,000**
3. Implementation: **$2,000,0000**

The maximum levels of funding for RESCO Collateral projects are;

1. RE Integration, piloting and implementation of smart grid concepts: **$1,000,000** (PIER Natural Gas funding)
2. Dairy bio-gas or bio-power technology characterization, assessment and validation: **$1,000,000** (PIER Natural Gas funding)
3. Demonstration of low cost, low emission technologies for conversion of biogas: **$300,000** (PIER Electricity funding)

This solicitation requires match funding except for Collateral Category 2. For exploratory stage projects, minimum match funding is 25% of the total project cost (cash and in-kind). For pilot, implementation, and collateral projects, minimum match funding is 50% of the total project cost (cash and in-kind match).

The Energy Commission will evaluate and score the level of requested and match share funding in accordance with the Scoring Criteria in Attachments C1 and C2 of the Application Manual.

Eligible Applicants

This is a competitive solicitation for RESCO Technical Integration projects or for RESCO Collateral Category projects.

A. RESCO Technical Integration Projects:

The Energy Commission is seeking California based organizations as Prime Applicants for RESCO Technical Integration projects. Eligible organizations must be empowered to act on behalf of a specific community in the matters of RESCO planning and implementation. The following list identifies eligible organizations and their related RESCO community context. Prime applicants must identify the specific community whose interests they will be representing in executing a RESCO Technical Integration project.
Potential community-based organizations or RESCOs include:

- California cities and counties targeting net-zero communities and buildings.
- Chartered California institutions of higher education aiming to shift a campus energy supply mix toward RE.
- Likewise, California school districts aiming to shift district-wide on-campus energy supply toward RE.
- California public agencies engaged in shifting the energy supply mix for specific community-scale operations, e.g. prisons and/or water treatment and pumping operations, toward RE.

- California utilities engaged in facilitating RE deployment in (or for) a particular community area they are currently serving, e.g. RE deployment dedicated to supply specific, identifiable communities and sub-divisions.
- California jurisdictions jointly or individually exploring or moving to implement community choice aggregation in order to achieve locally determined clean energy supply and climate mitigation targets.
- California chartered industry or agriculture associations engaged in development and aggregation of RE supply by local industry members, e.g. bio-methane collection and distribution grids organized by dairies and/or food processors that are integrated in energy systems that include other complementary RE sources.
- California-based Native American governments exploring or implementing a RESCO vision.
- Corporate entities or industry associations exploring or implementing a RESCO vision and empowered to represent the energy users in a proposed or already established business park or industrial zone.

For RE Technical Integration Projects, applicant teams should have the community-based experience and technology, market, and socio-economic skills to create broadly acceptable and economically and technically sound solutions. In particular, the Energy Commission is interested in supporting inter-disciplinary and community empowered teams that can cut across internal community boundaries and RE technology borders to exploit synergies and solve problems.

B. RESCO Collateral Projects:

The Energy Commission is seeking Prime Applicants for RESCO collateral projects that are either qualified by experience and skills to execute the specific scope of work or are offering to share the cost of a Collateral Project and sub-contract with technology developers, consultants, and other qualified organizations to execute the scope of work. Specifically, organizations eligible to serve as prime applicants for RESCO Technical Integration Projects are also eligible to serve as prime applicants for RESCO Collateral Projects.

All RESCO Projects:

California business entities as well as non-California business entities conducting intrastate business in California are required to register and be in good standing with the California Secretary of State to enter into an agreement with the Energy Commission. If not currently registered with the California Secretary of State, Applicants are encouraged to contact the Secretary of State's Office as soon as possible to avoid potential delays in beginning the proposed project if your application is successful. For more information, contact the Secretary of State's Office via their website at www.sos.ca.gov.

Prime Applicants may submit multiple proposals. However, each proposal must be for distinct, separate projects and must be submitted separately adhering to all requirements contained in this solicitation.

Schedule of Proposal and Award Process:

Release of Program Opportunity Notice & Application Manual	December 8, 2008
First Pre-Proposal Workshop Hearing Room A, 10 AM	December 22 , 2008 See *December 22* Public

California Energy Commission 1516 Ninth St, Sacramento, CA 95814	Participation in the Application Manual
Second Pre-Proposal Workshop Hearing Room A, 10 AM California Energy Commission 1516 Ninth St, Sacramento, CA 95814	December 23 , 2008 See *December 23*, 2008 Public Participation in the Application Manual
Deadline to Submit Questions	December 29, 2008
Post Questions and Answers to Website	*January 9 , 2009*
Deadline to Submit Proposals	**January 30, 2009** 4:00 p.m. Pacific Daylight Time
Interview Applicants (if necessary)	February 2009
Post Notice of Proposed Award	*Estimated* Last Week of Feb or 1st Week of March 2009
Approval of Awards at Energy Commission Business Meeting	*Estimated* June 2009

Please see the full Application Manual for more information.

Availability of Solicitation Documents and Information:
This solicitation and all supporting documents and forms can be found at http://www.energy.ca.gov/contracts/index.html under "Current Solicitations." Interested parties may also register on the electronic mailing list on this webpage to receive notifications of any changes to this solicitation.

For those parties without internet access, copies of solicitation documents and information can be obtained by contacting:

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In addition, you may request to be added to the mailing notification list to receive changes made to this solicitation.